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Research Article

Human Capital Development and Economic Growth in Nigeria: An ARDL Bound-Testing Approach

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Abstract: *The development of human capital as a means of promoting economic progress in Nigeria is the main emphasis of this study. The investigation used time series data from 1981 to 2018. The data analysis method employed was ARDL Bound-Testing. It was discovered that the human capital development factors of education and health had favorable and statistical significance effects on economic growth. The study, therefore, recommended that to achieve a sustainable impetus for economic growth, a robust action plan focusing on the rejuvenation of the country's educational and health sectors must be entrenched. In addition, the recommendation for an upward review of yearly budgetary provisions to these two sectors was also made coupled with holistic restructuring and overhauling of the concerned agencies affiliating the sectors.*

Keywords: *ARDL Bound-Testing, Economic Growth, Human Capital Development, Nigerian Economy, Nigeria*.

I. INTRODUCTION

The apparent lack of human capital development is one of the major roadblocks to the economies of the majority of impoverished nations worldwide. The majority of developing nations, including those in Africa, are undoubtedly endowed with a wealth of natural resources. The economic potential that nature has endowed these African nations with includes crude oil, solid minerals, fertile lands, favourable climatic conditions that may lead to food security, the reduction of poverty, industrialization, and sustainable growth. In addition, Nigeria has a sizable area of fertile land (approximately 923,768 square kilometres), a population that is vigorous and young and of many different ethnic and cultural backgrounds. Ironically, despite having so many resources and potential, the country has not seen any discernible economic improvement. Perhaps a lack of skilled human labour is the main reason why the majority of these resources are untapped. A development strategy that prioritizes human capital development would inevitably increase the effectiveness of human resources in such economies, leading to excellent governance, which in turn alters the country's economic fortunes.

Globally, development specialists have looked at the significance of human capital development in fostering economic progress. Massive investments in the human capital components of education and health are necessary to develop human capital. Exceptional contributions in this field have been made by Appleton and Teal (1980), Baldacci et al. (2004) and Chukwunonso (2015). The relationship and contributions of human capital development to economic growth have also been studied by Okechi (2006), God's Time and Uchechi (2014), Adelakin (2011), Eggoh et al. (2015), Diaconu and Popescu (2016), Dinassoma and Nwosa (2011) and Mba et al. (2013). However, although some studies have shown that increased human capital development spurs economic growth, others contend that the rise of healthcare services in Nigeria and the country's economic performance are moving in the other way.

Equality in income distributions should be considered while evaluating the economic success of any country using numerous metrics and factors, including human capital. Any nation's quality and quantity of human capital is a crucial indicator of its ability to reduce income inequality and do well economically. As a significant element influencing income disparity, human capital is essential to the income distribution process. Human capital development promotes economic disparity, according to studies like Field (1980), Ram (1990), Gregorio and Lee (2002), and Charkraborty and Das (2005). According to the literature, human capital is a key element in achieving economic growth and raising the standard of life. Economic growth models place a strong priority on human capital.

Human capital is defined by many academics, including Freeman and Soete (1997) and Okojie (1995), as the capacities and expertise of a country's labor force. Its formation is the process of obtaining and growing the population with the education, experience, and training required for a country's economic growth. Oluwatobi and Ogunrinade (2011) defined human capital as the knowledge and skills that all people in a society have gained and find beneficial. In addition, Pumela (2011) defined

human capital as the totality of human traits that are relevant to economic activities, such as experience, knowledge, skills, and competencies.

Given that emerging nations are currently pursuing the majority of production elements, human capital is crucial. This is because human capital coordinates the other production inputs to create commodities and services for human use. The three main pillars of human capital development are education, health care, and training, and they are crucial factors in growth and development (Eneji et al., 2013).

The empirical contributions of human capital to economic growth in emerging nations have been examined in a number of researches. Among the few works in this area were those by Campbell and Agbiokoro (2014), Odonkor (2017), Aderemi (2013), Diakom and Popescu (2016) and Adeyemi and Ogunsola (2019). Their research showed that greater human capital leads to faster economic growth. Government spending on healthcare and education are frequent metrics employed in these earlier researches. The quality and quantity of human capital, as well as economic growth, would both benefit from an increase in government spending on education.

Government spending on education and health care, according to Omonkhande et al. (2014), Okafor and Ogbonna (2017), Edeme and Kalu (2019) and Omodero (2019), is the catalyst for the growth of human capital. Furthermore, the positions taken on this topic by Olanrewaju et al. (2013), Olaniyan et al. (2013) and Eggoh et al. (2015) are all quite apparent. They underlined the significance of effective and efficient healthcare services following their distinct empirical investigations on the influence of healthcare spending on economic growth. They believed that a healthy man with high abilities would be motivated to contribute more labour, expertise, and knowledge to the creation of products and services, raising productivity and stimulating economic progress.

However, some research indicated a conflict between health spending and economic expansion in emerging nations. These researches provided an explanation for the inadequate budgetary funding for the healthcare industry as well as the modest private-sector investments in healthcare services. In comparison to population growth, government health spending is increasing at a rate that follows mathematical and geometric progressions. As a result, it is believed that due to rapid population expansion, high rates of inflation, and government urban-city development, health per capita is declining annually. In Nigeria, metropolitan areas have higher concentrations of healthcare services than rural areas, where more than 80% of the population lives.

Investigating the long-term effects of human capital development on economic growth is the goal of this study. More specifically, the study sought to determine the impact of government investment on education and health in Nigeria's economic growth. Additionally, it sought to analyze the shocks caused by government spending on healthcare and education.

II. LITERATURE REVIEW

The relative influence of human capital development on economic growth is currently a topic of interest for development professionals all around the world. Numerous empirical researches have been done on this subject in the context of Nigeria. But it has also been looked at how human capital affects economic disparity in OECD nations. For instance, Jordan (2017) examined how human capital affected income inequality in the OECD's member nations between 1985 and 2018. The study discovered that human capital development has a substantial negative impact on income inequality in OECD nations by using the multiple regression approach, the Gini coefficient, and average educational attainment to measure income inequality and human capital development, respectively.

Mohammed and Popoola (2016) analyzed the factors that contributed to the growth of human capital in the African region between 2000 and 2013. The study used the panel co-integration approach and found that the development of human capital and its determinants are cointegrated. The study also showed how important government spending on health and education is to maintaining the growth of human capital. Additionally, between 1999 and 2014, God's Time and Uchechi (2014) looked into the impact of Nigeria's economic expansion on human capital development. The results of applying the improved Solow human capital-growth model revealed that the only way for the nation to experience sustained economic growth is through investing in its people. According to the study's findings, policymakers should work to ensure high-level human capital development through proper educational spending.

Pumelmsweli (2015) evaluated the human capital development elements that contribute to the variations in the human capital index in South Africa and Botswana. Human capital indices included factors such as workforce employment, health and education, well-being, and an enabling environment. The results indicated that, in comparison to South Africa, Botswana had a greater negative human capital index score. It is interesting to note that neither economy got a good index score. According to the study's findings, governments in African nations should prevent the brain drain that has reduced their skilled labour pool. Between 1995 and 2010, Novigron, Olakojo, and Novigron (2012) looked at the effect of public and private healthcare spending on the health condition of sub-Saharan African nations. The results of using fixed and random effect panel regression approaches

showed that healthcare spending has a substantial impact on health status, which raises life expectancy and lowers newborn mortality and overall death. Furthermore, the cost of receiving medical treatment, both privately and publicly, is closely tied to one's health.

Omankhanden et al. (2014) looked at the effectiveness of Nigeria's investment in the development of human capital between 1990 and 2013. When efficiency was quantified as an input-oriented variable return to scale, the results showed a decline in the country's expenditure effectiveness on the development of human capital throughout the reference period. Eneji et al. (2013) also looked at the relationship between Nigerian production, health status, and healthcare spending. The findings, which were based on primary and secondary data for the years 1999 to 2012, showed that government expenditure has a multiplier effect on the nation's production and health. It was discovered, however, that government spending on healthcare has remained low.

For the years 1980 to 2010, Campbell and Agbiokora (2014) looked at the impact of government spending and human capital development on economic growth in Nigeria. The findings of using both the conventional least squares method and the three-stage least squares method showed that production, technical advancement, and human capital all had substantial and favorable influences on Nigeria's economic growth. Additionally, research revealed that highly skilled labour, which has stable employment, is what propels economic expansion in the nation. Education is also shown to have the biggest marginal impact on life expectancy. According to the study's findings, government action is necessary to boost funding for the ongoing development of productive and efficient human capital.

Kairo et al. (2017) employed the ARDL and impulse response approaches to determine the relative impact of government expenditure on the development of human capital in Nigeria. Findings showed that there is no correlation between short and long-term government spending on human capital. According to the report, government investment should be primarily directed at developing human capital through the establishment of specialized, technologically advanced educational institutions and effective healthcare facilities.

In Kenya, the relationship between the financing of education and investments in human capital was investigated by Boaz et al. (2014). When compared to other sources of financing, descriptive statistics were used for the main data obtained, and the results revealed that private finance contributed the most to the investment in human capital in secondary schools. Additionally, research revealed that finance from non-profit groups made little contribution to the investment in human capital. According to the study's findings, the government must promote secondary education by providing funding on time and by making it easier for instructors to find jobs in order to raise capital investment.

Lawanson (2015) examined the importance of human capital's health and education in fostering economic growth in West African countries between 1980 and 2013. Results from a linear regression method showed that the human capital aspects of health and education are crucial in affecting growth in this region. Additionally, the findings showed that health had a greater impact on this region's economic growth than education. The research came to the conclusion that lawmakers should seek measures that will improve the nation's access to healthcare and education.

Adefemi (2014) also looked at the connection between Nigeria's economic expansion and investment in human capital between 1981 and 2011. The results of the OLS approach showed that, in contrast to other measures of human capital, the level of basic education did not significantly contribute to the explanation of national economic growth. Economic development was significantly influenced favourably by secondary school completion, higher education completion, literacy per capital education, health spending, and a host of other factors. The study concluded that measures should be taken to guarantee that citizens continue their education after finishing elementary school.

Between 1970 and 2010, Odonkor (2017) looked at how human capital affected economic growth in Ghana. The study used the conventional least squares method, and the results showed that ongoing expenditure on health and education hurts economic growth over the reference period. However, the labour force and life expectancy had a major beneficial impact on economic growth. The study concluded that greater research and development requires better funding dispersal and adequate monitoring of such.

III. METHODOLOGY

The novel endogenous growth model of Lucas (1998) serves as the research's theoretical foundation. With the use of a subjective notion of knowledge, the model emphasized the significance of education in the process of progress. Lucas (1998) referred to people as human capital and utilized knowledge as an entry good. Human capital is an alternative and a complement to technology in the production function, according to Lucas' model. We show the Lucas (1998) model as

$$L^e = \mu hN \tag{1}$$

Equation (1) assumes that a person spends his non-leisure time engaging in educational pursuits. This allocation has a beneficial impact on productivity and the amount of human capital (h) in terms of returns. N is the number of employees overall, all of whom are presumed to be the same and to have the same degree of expertise (h). μ is the percentage of their non-leisure time that they dedicate to present production; the surplus, shown by 1-μ, will be used to fund the development of human capital. Given that the sum of capital (k) and productive labor is the production function, the following follows:

$$Y = f(K, L^e) \tag{2}$$

Lucas places special focus on two outcomes of human capital. First, there is the internal effect, which refers to those who have acquired new abilities, and then there is the exterior effect. These are those who make improvements to other people's productivity. Economic agents make decisions about how much time to allocate to various tasks during the manufacturing process without taking the external impact into account.

Lucas (1998) asserts that this externality represents the average rather than the total amount of human capital employed; hence, Equation (1) may be rewritten as follows:

$$L^e = \mu h_a N \tag{3}$$

The externality in the production is called ha (represents average and not the total human capital). Since all the individuals are the same, the average SKM level ha changes at equilibrium. Production excellent technology is described as follows:

$$Y_t = N_t C_t + K_t = AK_t^{\beta} \left[\mu_t h_t N_t\right]^{1-\beta} h_a(t)^{\gamma} \tag{4}$$

Where A is the degree of technology and C(t) is the per capita consumption (assumed to be constant). Therefore, the production function at equilibrium is:

$$Y_t = AK_t^{\beta} \left[h_t N_t\right]^{\alpha} \tag{5}$$

Expressing Equation (5) in log-linear form:

$$InY_t = InA_t + \beta_1 InK_t + \alpha Inh_t + \alpha InN_t + \mu_t \tag{6}$$

A) Model specification and estimation techniques

Equation (6) will be utilized to describe the model for this investigation following the theoretical framework employed in this study.

$$RGDP = f(GCF, LAB, EDU, HEX, EMP) \tag{7}$$

Where LAB stands for labor, EDU stands for education expenditure, HEX stands for health expenditure, and EMP is for employment rate. RGDP stands for real gross domestic product. Equation (7) can be explicitly stated as:

$$RGDP = \alpha_0 + \alpha_1 GCF + \alpha_2 LAB + \alpha_3 EDU + \alpha_4 HEX + \alpha_5 EMP + \mu_t \tag{8}$$

B) Modelling the short and long-run impact

Pesaran and Pesaran (1997) employed the limits test method to estimate both the short-run and long-run connections. The Auto Regressive Distributed Lags (ARDL) with Bound Test model is described after the conceptual framework of the study.

$$\begin{aligned}\Delta RGDP_t = {} & \delta_0 + \delta_1 RGDP_{t-i} + \delta_2 GCF_{t-i} + \delta_3 LAB_{t-i} + \delta_4 EDU_{t-i} + \delta_5 HEX_{t-i} + \delta_6 EMP_{t-i} + \sum_{i=1}^{q} \lambda_i^1 \Delta RGDP_{t-i} \\ & + \sum_{i=0}^{q} \lambda_i^2 \Delta GCF_{t-i} + \sum_{i=0}^{q} \lambda_i^3 \Delta LAB_{t-i} + \sum_{i=0}^{q} \lambda_i^4 \Delta EDU_{t-i} \\ & + \sum_{i=0}^{q} \lambda_i^5 \Delta HEX_{t-i} + \sum_{i=0}^{q} \lambda_i^6 \Delta LAB_{t-i} + \varepsilon_{1t}\end{aligned} \tag{9}$$

C) Shock effects

To determine the current link between the variables, this study utilized short-run constraints. The written classical VAR system does explicitly state how the variables are related in real-time.

$$\begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ b_{21} & 1 & 0 & 0 & 0 & 0 \\ b_{31} & b_{32} & 1 & 0 & 0 & 0 \\ b_{41} & b_{42} & b_{43} & 1 & 0 & 0 \\ b_{51} & b_{52} & b_{53} & b_{54} & 1 & 0 \\ b_{61} & b_{62} & b_{63} & b_{54} & b_{65} & 1 \end{pmatrix} \begin{pmatrix} RGDP_t \\ GCF_t \\ LAB_t \\ EDU_t \\ HEX_t \\ EMP_t \end{pmatrix} = c_{ij} \begin{pmatrix} RGDP_t \\ GCF_t \\ LAB_t \\ EDU_t \\ HEX_t \\ EMP_t \end{pmatrix} \quad (10)$$

There is a chance to decompose the covariance matrix in a way that solves the variables since Equation (10) illustrates the constraints in the system. Imposing limits makes it easier to detect structural shocks, which are known as contemporaneous restrictions (Asaleye *et al.*, 2019).

D) The Causal Effects

Toda and Yamamoto's (1995) investigation is used in this study to look at the causal connection between the chosen factors. In the causality process, L represents the lag length while $(l + m_{\max})^{th}$ order VAR represents the lag length plus the maximal order of integration. That is, the $m_{\max}$ represents the maximal order of integration. The estimation is carried out $(l + m_{\max})^{th}$ while the coefficient $m_{\max}$ lagged vectors are ignored. If two variables are assumed, say X and Z, then the model is given as:

$$X_t = b_0 + \sum_{i=1}^{L} b_{1i} X_{t-i} + \sum_{j=l+1}^{m\max} b_{2j} X_{t-j} + \sum_{i=i}^{L} \beta_{1i} Z_{t-i} + \sum_{j=l+1}^{m\max} \beta_{2j} Z_{t-j} + \rho_{1t} \quad (11)$$

$$Z_t = c_0 + \sum_{i=1}^{L} c_{1i} Z_{t-i} + \sum_{j=l+1}^{m\max} c_{2j} Z_{t-j} + \sum_{i=i}^{L} \alpha_{1i} X_{t-i} + \sum_{j=l+1}^{m\max} \alpha_{2j} X_{t-j} + \rho_{2t} \quad (12)$$

E) Sources of Data

The analysis uses yearly data spanning the years 1980 to 2018. The information was gathered from the National Bureau of Statistics 2019 issues as well as the Central Bank of Nigeria's Statistical Bulletin and other sources.

IV. PRESENTATION OF RESULTS

Table 1: ADF Unit Root Test Results

	Level	First Diff				
			1%	5%	10%	
RGDP	-1.144651	-5.440297)***	-4.243644	-3.544284	-3.204699	I(1)
GCF	-5.891251***	-	-4.243644	-3.544284	-3.204699	I(0)
LAB	1.156917	-5.169273***	-4.243644	-3.544284	-3.204699	I(1)
EDU	-2.557102	-5.520640***	-4.243644	-3.544284	-3.204699	I(1)
HEX	-5.411510***	-	-4.243644	-3.544284	-3.204699	I(0)
EMP	-	-3.662682***	-3.626784	-2.945842	-2.611531	I(1)

Source: *Authors' Computation 2024*

Table 2: ARDL Long Run Form and Bounds Test

Dependent Variable: D(LNRGDP)				
Selected Model: ARDL(3, 1, 3, 3, 1, 3, 2)				
Case 2: Restricted Constant and No Trend				
Sample: 1980 2019				
Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.84443	3.897080	4.065720	0.0012

LNRGDP(-1)**	-0.254999	0.096379	-2.645785	0.0192
LNEDU(-1)	-0.000641	0.000426	-1.504321	0.1547
LNHEX(-1)**	0.003682	0.001447	2.544296	0.0234
LNGCF(-1)	-0.031651	0.028916	-1.094571	0.2922
LNLAB(-1)***	-1.463880	0.437843	-3.343393	0.0048
LNEMP(-1)	0.410815	0.376949	1.089845	0.2942
D(LNRGDP(-1))*	0.374159	0.194454	1.924150	0.0749
D(LNRGDP(-2))***	0.150991	0.047347	3.189045	0.0066
D(LNEDU)	-0.000395	0.000300	-1.314870	0.2097
D(LNHEX)**	0.000969	0.000442	2.192705	0.0457
D(LNHEX(-1))**	-0.001727	0.000722	-2.391331	0.0314
D(LNHEX(-2))**	-0.000957	0.000422	-2.264551	0.0399
D(LNGCF)	0.007664	0.023292	0.329048	0.7470
D(LNLAB)***	-2.426191	0.749170	-3.238506	0.0059
D(LNLAB(-1))	0.674639	0.512927	1.315272	0.2096
D(LNLAB(-2))	-0.667463	0.549859	-1.213882	0.2449
D(LNEMP)	0.193749	0.281029	0.689428	0.5018
D(LNEMP(-1))**	-0.973203	0.433011	-2.247524	0.0412
* p-value incompatible with t-bounds distribution.				
Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEDU	-0.002514	0.001450	-1.733412	0.1050
LNHEX***	0.014438	0.004266	3.384747	0.0044
LNGCF	-0.124123	0.129769	-0.956492	0.3551
LNLAB***	-5.740732	1.867089	-3.074697	0.0082
LNEMP	1.611048	1.355771	1.188289	0.2545
C	62.13532	17.71393	3.507710	0.0035
EC = LNRGDP - (-0.0025*LNEDU + 0.0144*LNHEX -0.1241				
*LNGCF -5.7407*LNLAB + 1.6110*LNEMP + 62.1353)				
F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Significant	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.012018	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99
Actual Sample Size	37		Finite Sample: n=40	
		10%	2.218	3.314
		5%	2.618	3.863
		1%	3.505	5.121
			Finite Sample: n=35	
		10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326

****Statistically significant at 1%, ** at 5% and * at 10%*
Source: *Authors' Computation 2024*

ARDL bound test statistics and critical value (restricted intercept; no trend)
Computed F-statistic = 5.012018 (lag structure, k=5)

Bounds Level	Lower I (0)	Upper I (1)
Critical Bounds Value (1%)	3.41	4.68
Critical Bounds Value (5%)	2.62	3.79

Table 3: ARDL Error Correction Regression

Dependent Variable: D(LNRGDP)				
Selected Model: ARDL(3, 1, 3, 3, 1, 3, 2)				
Case 2: Restricted Constant and No Trend				
ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNRGDP(-1))***	0.374159	0.105004	3.563282	0.0031
D(LNRGDP(-2))***	0.150991	0.029864	5.055913	0.0002
D(LNEDU)**	-0.000395	0.000168	-2.347097	0.0342
D(LNHEX)***	0.000969	0.000242	4.001994	0.0013
D(LNHEX(-1))***	-0.001727	0.000306	-5.636198	0.0001
D(LNHEX(-2))***	-0.000957	0.000233	-4.098079	0.0011
D(LNGCF)	0.007664	0.015878	0.482708	0.6368
D(LNLAB)***	-2.426191	0.410429	-5.911352	0.0000
D(LNLAB(-1))*	0.674639	0.366947	1.838518	0.0873
D(LNLAB(-2))*	-0.667463	0.317708	-2.100872	0.0542
D(LNEMP)	0.193749	0.194432	0.996489	0.3359
D(LNEMP(-1))***	-0.973203	0.209581	-4.643567	0.0004
CointEq(-1)	-0.254999	0.032881	-7.755270	0.0000
R-squared	0.877309	Mean dependent var		0.041072
Adjusted R-squared	0.789673	S.D. dependent var		0.042152
S.E. of regression	0.019332	Akaike info criterion		-4.755673
Sum squared resid	0.007848	Schwarz criterion		-4.059060
Log-likelihood	103.9800	Hannan-Quinn criter.		-4.510084
Durbin-Watson stat	1.799273			
* p-value incompatible with t-Bounds distribution.				
F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.012018	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

****Statistically significant at 1%, ** at 5% and * at 10%*
Source: Authors' Computation 2024

Table 4: Breusch-Godfrey Serial Correlation LM Test

(*Diagnostic test for the ARDL Model)*

F-statistic	2.472871	Prob. F(2,12)	0.1261
Obs*R-squared	10.79873	Prob. Chi-Square(2)	0.0045
S.E. of regression	0.021520	Akaike info criterion	-4.614296
Sum squared resid	0.005557	Schwarz criterion	-3.525838
Log-likelihood	110.3645	Hannan-Quinn criter.	-4.230564
F-statistic	0.206073	Durbin-Watson stat	2.277828
Prob(F-statistic)	0.999504		

Source: *Authors' Computation 2023*

Table 5: Heteroskedasticity Test: Breusch-Pagan-Godfrey

(*Diagnostic test for the ARDL Model)*

F-statistic	0.827152	Prob. F(22,14)	0.6648
Obs*R-squared	20.91172	Prob. Chi-Square(22)	0.5262
Scaled explained SS	3.304615	Prob. Chi-Square(22)	1.0000

Source: *Authors' Computation 2023*

Figure 1 (*Diagnostic test for the ARDL Model)*

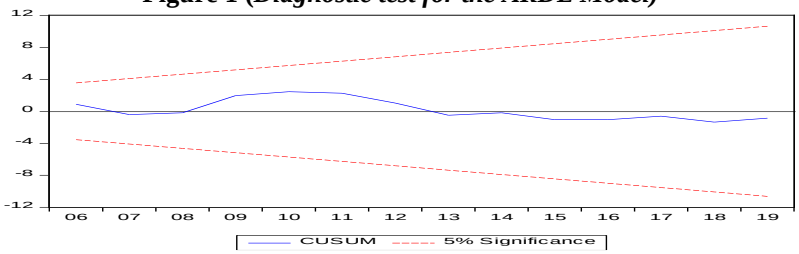
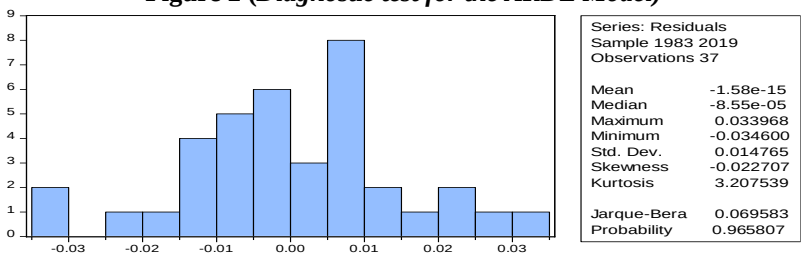


Figure 2 (*Diagnostic test for the ARDL Model)*



V. INTERPRETATION AND DISCUSSION OF RESULTS

The outcome of the error correction model (ECM) estimation for the model demonstrates that nearly all of the independent variables have been proven to be significant and adjusting, which is consistent with the chosen ARDL (3, 1, 3, 5, 1, 3, 2). The short-term adjusting speed is shown by the ECT co-efficient, which has a negative sign and is significant at 1% (Cointeq (-1) = -0.254999). The maximum and lower critical value bounds are both surpassed by the F-statistic value 5.012018. Due to the absence of a constant or trend in the cointegrating connection, this model shows that we reject the null hypothesis that there is no link.

The F-statistic equivalent is 2.472871, and the Breusch-Godfrey serial correlation LM test shows that the prob. F (2, 12), which is 0.1261, is not significant. As a result, the calculated model is devoid of serial correlation, indicating that the alternative hypothesis of the presence of serial correlation is rejected; according to the results of the Breusch-Pagan-Godfrey test for heteroscedasticity, the prob. F (22, 14) is 0.6648, and the F-statistic is 0.827152. Similar to this, the stability CUSUM test is also known as the Figure 1 test. The CUSUM graphic indicates that the model's parameters are stable since the cumulative sum of residuals is within 5% of the critical value.

The ARDL bound-testing result in Table 2 showed that several of the factors employed in the study, notable among them being the human capital variables, might be linked to the country's positive increase in gross domestic product. It may be found that rising government spending on health in the past has fueled economic expansion in the present. This is discovered to be consistent with how the two variables should relate to one another. It appears that fruitful government investment in expanding the nation's healthcare infrastructure is a significant assurance of a healthy labor force. In a similar line, strong economic activity is sparked by a healthy, productive populace. This connection between government spending on health and economic development is likewise found in the case of all other public spending.

According to the study's findings, growth in the labour force's size during the previous period has no bearing whatsoever on the economy's present production. Instead, growth in the labour force's size over the previous period causes the current period's economic performance index to decline. This has a plausible explanation. When it comes to the question of labour efficiency, quantity does not equal quality. The effectiveness of such labour determines the ingenuity and productivity of the worker. The degree of training acquired abilities, and physical and mental health of the involved labourers all play a role in this. This result confirmed the idea that a large and industrious young population does not guarantee a prosperous future for the nation. However, having a population of young people who lack education, training, and engagement but are active is detrimental to the economy. Young people who lack the skills to put their youthful energy to useful use will use it to commit crimes, making society unsafe for the few talented and productive people.

Additionally, it was shown that strong economic growth in the previous time frame improved economic performance in the current time frame. Economic agents often choose options that will benefit the greatest number of people. Both local and foreign investors are enticed to invest when the economy has performed well in the recent past. Given all other factors being equal, this improves performance during the following time. These claims are further supported by the outcome of the error correction model in Table 3.

VI. CONCLUSION AND RECOMMENDATION

The rise in Nigeria's economic performance during the previous two decades has not been particularly outstanding. A number of things might cause this. This research experimentally explores the potential contributions that human capital development may make to Nigeria's economic expansion. The investigation covered 38 years between 1981 and 2018 using time series data. To confirm the applicability and usefulness of the selected analytical techniques employed for the investigation, necessary diagnostic tests were carried out. As a result, the analysis's internal and external validity were established. Additionally, the literature-established determinants for human capital development—health and education—were shown to be statistically significant as well as positive.

Aggressive investment in the development of human capital is the main area to concentrate on in order to achieve the sustained expansion of the Nigerian economy. The nation's healthcare and educational infrastructure has to be revived because it is now in a dead state. Without the participation of the populace in such a push, no nation ever grows. Individuals' marginal economic contributions depend on their varying levels of productivity and creative investment. It is impossible to overstate the contributions that high-quality healthcare and educational institutions may make to this cause. A wise investment in the nation's health and education is a wise investment in the future of the economy.

According to the study's conclusions, a strong action plan aimed at revitalizing the nation's health and education sectors can provide a long-term boost for economic growth. A review of the annual budgetary allocations to the health and education sectors in an upward direction is strongly advised following recommendations made by UNESCO and WHO on the percentage of the national budget that should be allocated to each of these areas. A comprehensive reorganization and overhaul of the relevant ministry's departments, agencies, and commissions related to the education and health sectors is also required. This will provide them the opportunity to fulfil their legal obligations as industry participants and regulators. Cutting waste in the public sector, lowering the cost of governance, and waging an effective anticorruption battle is extremely important, especially because the required outcomes can only be obtained if appropriate financing is guaranteed.

VII. REFERENCES

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